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L175 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2002 ACS

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DN 133:189871

TI Novel peroxidase from Geotrichum candidum Dec 1 useful for decolorization of dyes

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SO PCT Int. Appl., 43 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

IC ICM C12N015-00

ICS C12N009-04; C12N001-21; C09B067-00; C12N015-00; C12R001-645;

C12N009-04; C12R001-19; C12N001-21; C12R001-19; C12N009-04;

C12R001-645

CC 7-2 (Enzymes)

Section cross-reference(s): 3, 10, 41

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000050582	A1	20000831	WO 2000-JP1093	20000225
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
JP 2000245468	A2	20000912	JP 1999-50562	19990226
EP 1156106	A1	20011121	EP 2000-905340	20000225
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

PRAI JP 1999-50562 A 19990226

WO 2000-JP1093 W 20000225

AB Geotrichum candidum peroxidase having the dye decompn. and decolorization activity, its recombinant expression, and uses in dye decompn. and decolorization, are disclosed. A peroxidase (DyP) involved in the decolorization of dyes and produced by fungal strain G. candidum Dec 1 was purified and characterized. DyP, a glycoprotein, was glycosylated with N-acetylglucosamine and mannose (17%) and had a mol. wt. of 60 kDa and a pI of 3.8. The absorption spectrum of DyP exhibited a Soret band at 406 nm corresponding to a hemoprotein, and its Na<sub>2</sub>S<sub>2</sub>O<sub>4</sub>-reduced form revealed a peak at 556 nm that indicated the presence of a protoheme as its prosthetic group. Nine of the 21 types of dyes that were decolorized by Dec 1 cells were decolorized by DyP; in particular, anthraquinone dyes Reactive Blue 5, Reactive Blue 19, AQ 2 were highly decolorized, as well as azo dyes Reactive Blue 182, Reactive Black 5, Reactive Red 33, and Reactive Yellow 2 to lesser extent. DyP also oxidized 2,6-dimethoxyphenol and guaiacol, but not veratryl alc. The optimal temp. for DyP activity was 30.degree., and DyP activity was stable even after incubation at 50.degree. for 11 h. The enzyme activity was inhibited by bivalent cations, Fe<sup>2+</sup> in particular.

ST anthraquinone azo dye decompn decolorization Geotrichum peroxidase;

Geotrichum peroxidase DyP gene sequence dye decompn decolorization

IT Decomposition

(biodegrdn.; novel peroxidase from Geotrichum candidum Dec 1 useful for decolorization of dyes)

IT Cations  
(divalent, Dyp inhibition by; novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT Decomposition  
(enzymic; novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT Anthraquinone dyes  
Azo dyes  
Decolorization  
Dyes  
Enzyme kinetics  
Genetic vectors  
*Geotrichum candidum*  
Michaelis constant  
Molecular cloning  
Protein sequences  
cDNA sequences  
(novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT *Escherichia coli*  
(recombinant expression in; novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT 34940-32-4, AQ 2 (dye)  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(AQ 2; novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT 15438-31-0, Fe<sup>2+</sup>, biological studies  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(Dyp inhibition by; novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT 12237-01-3  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(Reactive Red 33; novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT 288840-27-7 288840-28-8 288840-29-9 288840-30-2 288840-31-3  
288840-32-4  
RL: PRP (Properties)  
(Unclaimed; novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT 245078-90-4P  
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); CAT (Catalyst use); PRP (Properties); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)  
(amino acid sequence; novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT 9003-99-0P, Peroxidase  
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); CAT (Catalyst use); PRP (Properties); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)  
(novel peroxidase from *Geotrichum candidum* Dec 1 useful for decolorization of dyes)

IT 90-05-1, Guaiacol 91-10-1, 2,6-Dimethoxyphenol 2580-78-1, Reactive blue 19 16823-51-1, Reactive blue 5 17095-24-8, Reactive black 5 50662-99-2, Reactive yellow 2 85496-36-2, Reactive blue 182

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL  
(Biological study); PROC (Process)  
(novel peroxidase from Geotrichum candidum Dec 1 useful for  
decolorization of dyes)

IT 288880-04-6

RL: PRP (Properties)  
(nucleotide sequence; novel peroxidase from Geotrichum candidum Dec 1  
useful for decolorization of dyes)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

L176 19 ANSWERS REGISTRY COPYRIGHT 2002 ACS  
IN DNA (Geotrichum candidum strain Dec 1 clone 92 peroxidase cDNA) (9CI)  
SQL 1224  
MF Unspecified  
CI MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*